



IntelliDrive Safety Program Overview

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The Problem!!!

Safety

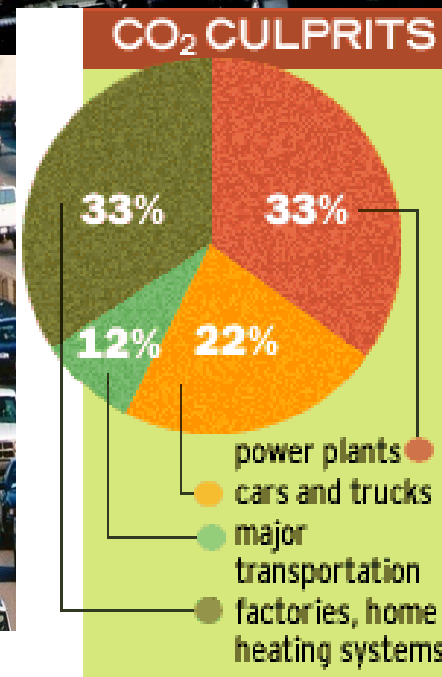
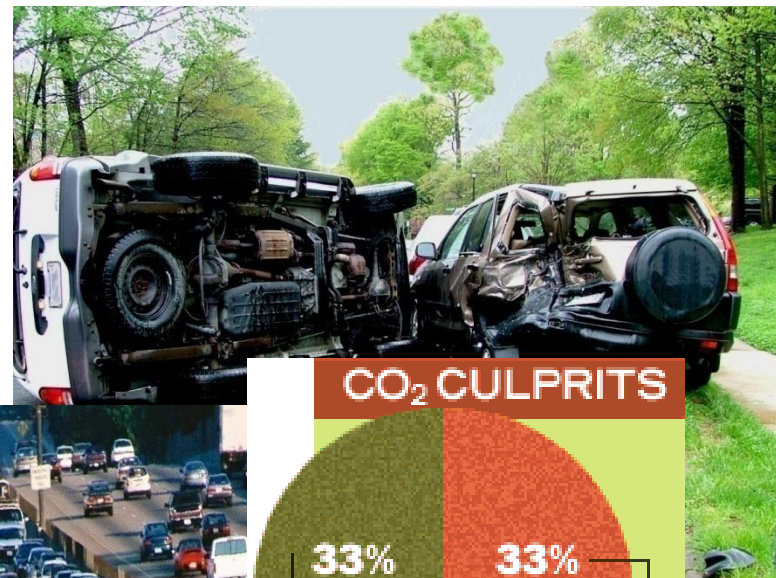
- 33,963 deaths/year (2009)
- 5,800,000 crashes/year
- **Leading cause of death for ages 4 to 34**

Mobility

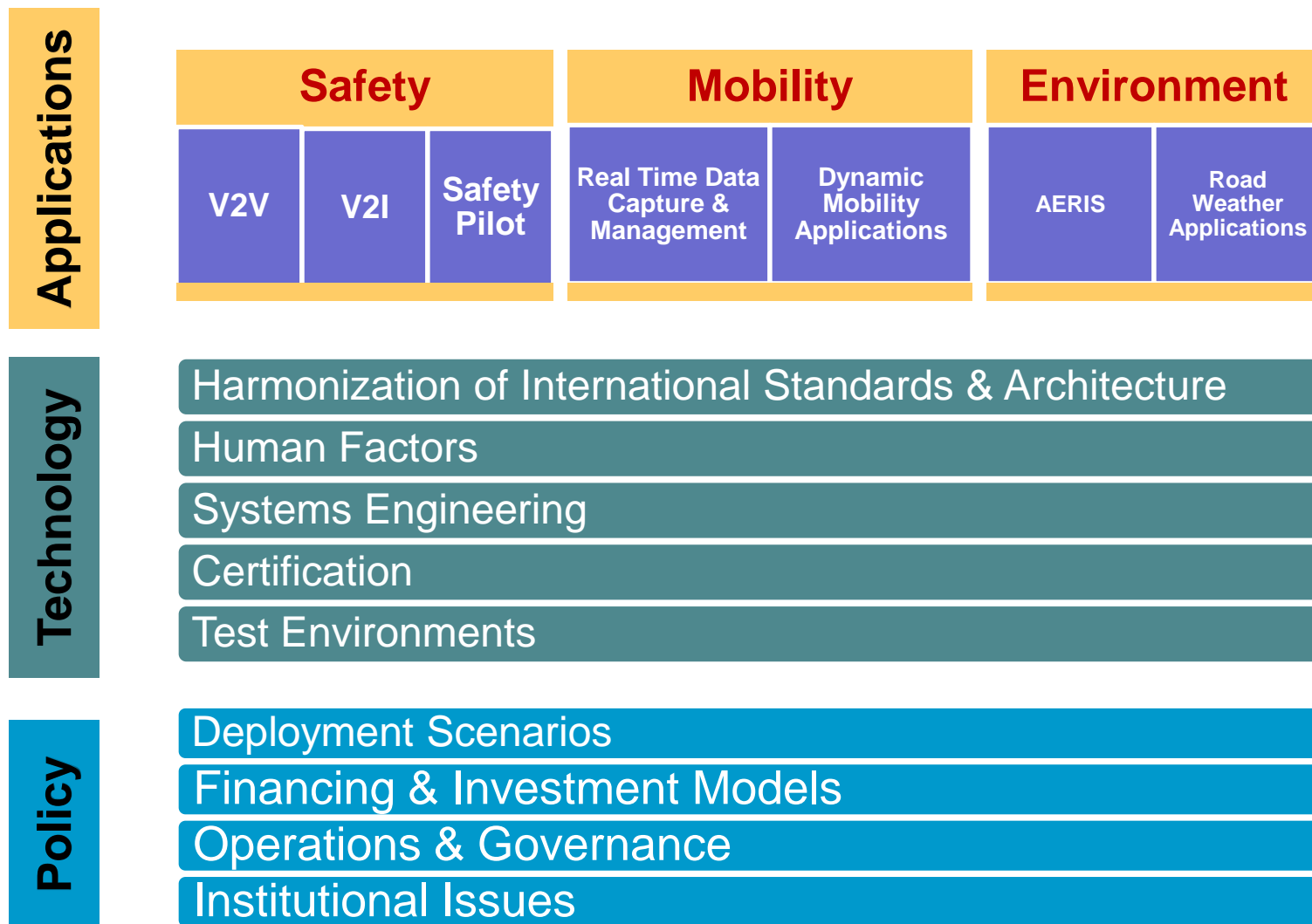
- 4.2 billion hours of travel delay
- \$78 billion cost of urban congestion

Environment

- 2.9 billion gallons of wasted fuel



IntelliDrive Program Structure



Major IntelliDrive Objectives

- Move aggressively on vehicle to vehicle communications
 - Regulatory Decision on In-Vehicle Equipment by 2013
- Accelerate in-vehicle technology
 - “Here I Am” messages
 - Enables safety and active traffic management
- Accelerate infrastructure communications capability
 - Signal Phase and Timing (SPaT) as initial focus
 - Enables safety, mobility, and environmental applications
- On road multi-modal pilot deployments for high-value applications
- Monitor and evaluation of driver distraction issues
- Understand benefits and communications needs (DSRC/other) of transformative mobility applications

Evolution of IntelliDrive Deployment

Original VII Deployment Model

- DSRC based for all applications
 - Infrastructure intensive using new DSRC technology
 - Vehicle turnover for embedded DSRC technology
- Start with V2I (for all application types) and evolve into V2V (safety)

US DOT's Current Perspective on IntelliDrive Deployment

- Non-safety (mobility, environment)
 - Leverage existing data sources & communications; include DSRC as it becomes available
 - Support development of key applications for public agencies using current data sources and evolving probe data from IntelliDrive
- Safety → DSRC
 - Aggressively pursue V2V; leverage vehicle capability for V2I spot safety
 - Can leveraging of nomadic devices & retrofitting accelerate benefits?
 - Infrastructure requirement for security is still a TBD

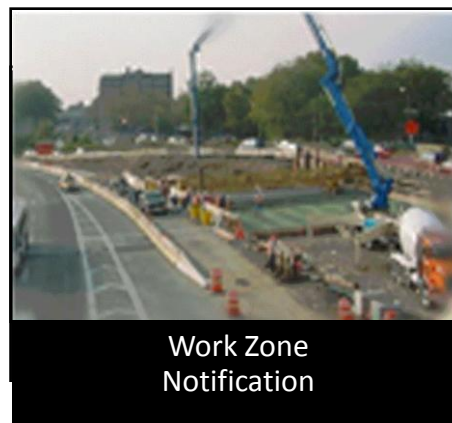
Opportunity for Safer Driving

➤ Greater situational awareness

- Your vehicle can “see” nearby vehicles and knows roadway conditions you can’t see

➤ Reduce or even eliminate crashes thru:

- Driver Advisories
- Driver Warnings
- Vehicle Control



IntelliDrive has the potential to address 82% of the vehicle crash scenarios involving unimpaired drivers



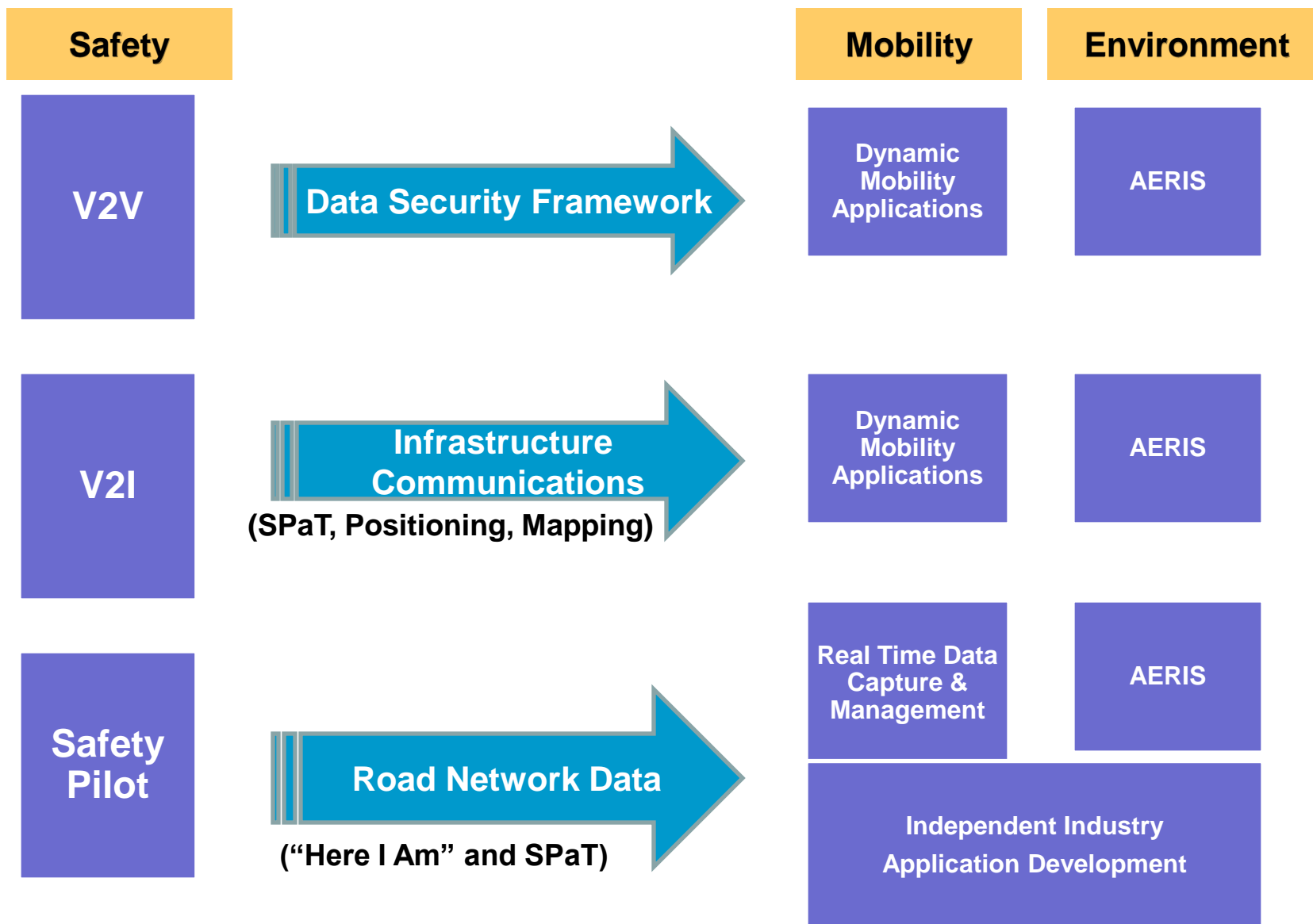
Key Elements of the IntelliDrive Safety Program

- DSRC for low latency needs
- OEM, retrofit, aftermarket device scenarios being considered for deployment
- All vehicle types being examined for value added applications
- Programs are structured towards achieving deployment
- Establishing national level interoperability → Open standards for communications and data
- Introduction of new systems/devices must consider driver distraction safety issues
- Ensure adequate levels of security
- Reasonably protect personal privacy
- Activities supportive of mobility and convenience applications

IntelliDrive Safety Program Areas

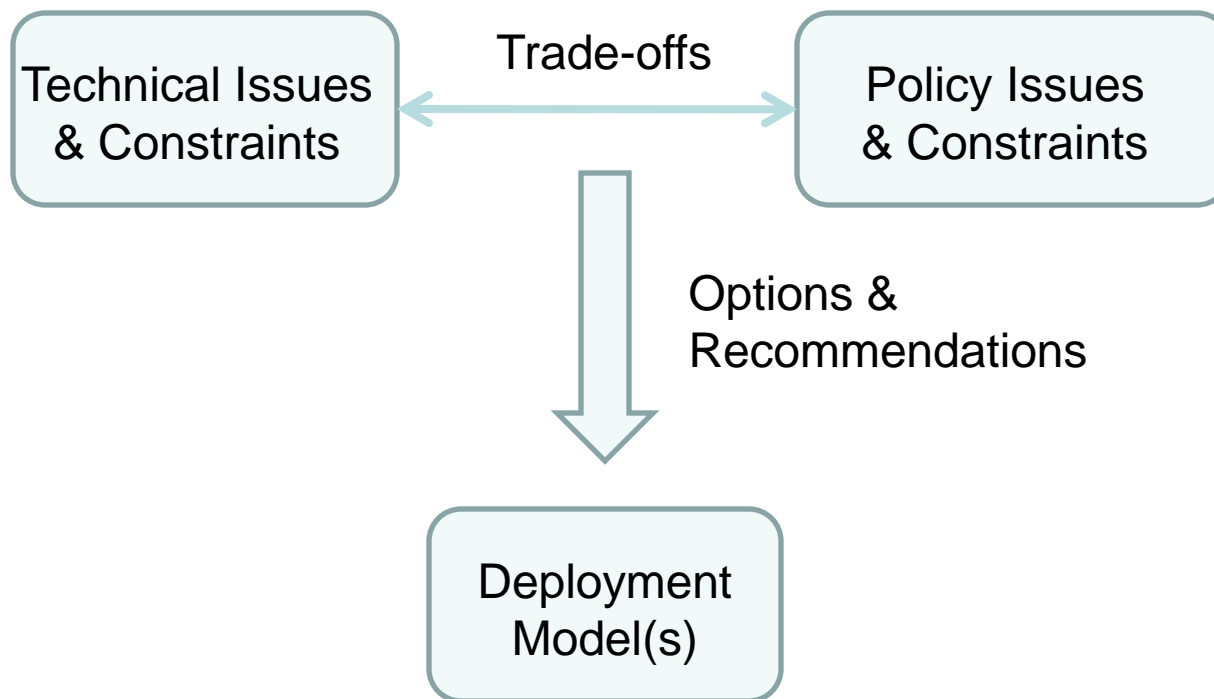
Initiative	Objectives
Vehicle-to-Vehicle	<ul style="list-style-type: none"> ▪ Support NHTSA regulatory decision for 2013 ▪ Could cover NEW cars, trucks, and buses
Safety Pilot	<ul style="list-style-type: none"> ▪ Ensure technical and institutional viability through real-world deployment testing. ▪ Accelerate in-vehicle technology to ensure value to the first V2V deployed vehicles
Vehicle-to-Infrastructure	Enable active safety applications to assist vehicle operators (including cars, trucks, and buses) and pedestrians to avoid or mitigate crashes.
Policy	Develop policy options and actionable recommendations for privacy, security, governance and other issues
Certification	Establish certification framework for ensuring that DSRC devices/interfaces are compliant with industry standards for communications and data messaging.
Human Factors for IntelliDrive	Eliminate distractions related to ITS devices as a contributing factor to crashes.
International Harmonization	Develop internationally harmonized standards, particularly around vehicle-based applications

Safety Program Provides Cross-cutting Support



Technical and Policy Interactions

(For Example: Security vs Privacy Trade-offs)



➤ *Policy trade-offs will require senior level decisions.*

Outstanding Technical Issues

- Penetration vs. Effectiveness
 - Driver Acceptance
 - Data Security
 - Positioning
 - Scalability
 - Channel Switching
- Being addressed under current CAMP activities
 - Establish independent technical peer review
 - Safety Pilot to provide real-world deployment for proving out solutions

Outstanding Safety Policy Issues


- How will tradeoffs between security, privacy and functionality be managed?
 - Operations
 - Who will monitor for misbehavior?
 - Who will operate the Security Certificate Authority?
 - Compliance & Enforcement
 - Who will enforce DSRC standards?
 - How will the rules of operation be developed and enforced?
 - Who and how will DSRC devices be certified?
- Critical V2V and V2I Policy Issues Being Defined
 - V2V Policy White Paper /Roadmaps Defined and Being Executed
 - Internal and External Stakeholder Engagement Being Defined

Large Scale Multi-Application Pilot

- Establish pilot V2I deployment that includes infrastructure and back office management
- Encompasses all application types
- Includes multiple wireless communication media
- Follow on to current activities in:
 - Systems Engineering
 - SPaT development
 - Standards update
 - Aftermarket device maturity
 - Safety Pilot
- Small prototyping over next 2 years
- Currently under consideration for development


For More Information...

<http://www.intellidrive.org/>



Site sponsored by the US Department of Transportation
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News & Updates


Proof of Concept Test Results Released
March 11th, 2009 at 4:04pm

IntelliDriveSM Brand Replaces VII
February 23rd, 2009 at 10:12am

SAFETRIP-21 News
December 4th, 2008 at 3:12pm


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